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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,011	11/06/2001	Gerard Jonard	9997.34USWO	7797

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EXAMINER

MEHTA, ASHWIND

ART UNIT	PAPER NUMBER
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1638

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/936,011

Applicant(s)

JONARD ET AL.

Examiner

Ashwin Mehta

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33-37, 39, 40, 42-50, 52 and 54-62 is/are rejected.
- 7) ☒ Claim(s) 38, 41, 51 and 53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5212004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 21, 2004 has been entered.
2. The objections to claims 1, 8, and 15 are withdrawn in light of their cancellations.
3. The rejection of claims 1, 2, 4, 5, 7-12, 14-25, 27-29, 31, and 32 is withdrawn in light of the claim cancellations.
4. The rejection of claims 23 and 27 under 35 U.S.C. 103(a) is withdrawn, in light of their cancellations.

Specification

5. The specification remains objected to for failing to comply with 37 CFR 1.74, which requires that there be a brief description of the drawings. Applicants are required to insert a section into the specification titled, "Brief Descriptions of the Drawings," or a

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similar title, and which contains brief descriptions of the drawings. New matter must be avoided.

Applicants indicate that a brief description of the drawings will be submitted when the application is otherwise in condition for allowance (response filed June 1, 2004, page 6, 4th full paragraph). However, Applicants are reminded that all they must respond to all objections and rejections set forth in an Office action, in their response to that Office action. See 37 CFR 1.111.

Claim Objections

6. Claims 33-38, 41, 46-51, and 53 are objected to for the following reasons:

In claim 33: the recitation, --of--, appears to be missing in line 6 after “downstream” and “upstream”.

Further in claim 33: a period punctuation mark erroneously appears at the end of line 8.

In claims 34, 35, 47, and 48: the article, --a--, is missing in line 2 after “by”.

In claims 36, 37, 49, and 50: the recitation, --of--, appears to be missing in line 2 after “downstream” and “upstream”.

In claim 46: the recitation, --of--, appears to be missing in lines 3-4 after “downstream” and “upstream”.

In claims 38, 41, 51, and 53: the claims are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 33-37, 39-40, 42-50, 52, and 54-62 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 33, 36, 37, 46, 49, and 50: the recitation, “just upstream” renders the claims indefinite. It is not clear what nucleotide sequences are encompassed by “just” upstream, as opposed, for example, to more than “just upstream.” The metes and bounds of the claim are unclear.

In claim 44: the recitation, “355 Cauliflower Mosaic Virus promoter” in line 2 of claim 44 and “359 Cauliflower Mosaic Virus promoter” in line 2 of claim 57 renders the claims indefinite. It is not clear what is meant by “355” and “359,” and therefore the identities of the intended promoters are unclear. It is suggested that “355” and “359” be replaced with “35S”, if Applicants are actually intending to refer to the Cauliflower Mosaic Virus 35S promoter.

In claims 45 and 58: the recitation, “active mainly in the root tissues” renders the claims indefinite. It is not exactly clear what is meant by “mainly” in the context of the claims. The metes and bounds of the claims are unclear.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

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art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 33-37, 39-40, 42-50, 52, and 54-62 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons of record stated in the Office action mailed December 9, 2003 for claims 1, 2, 4, 5, 7-12, 14-25, 27-29, 31, and 32. Applicants traverse the rejection in the paper filed June 1, 2004.

Applicants' arguments have been fully considered but were not found persuasive.

It is noted that Applicants have addressed the written description and enablement rejections together, in the response filed June 1, 2004. This is not proper, as these are separate rejections. Applicants are notified that these two rejections should be separately addressed in future responses. Here, the Examiner can only guess as to which parts of Applicants' arguments are directed to the written description rejection and which parts are directed to the enablement rejection.

Applicants argue that the rejection is moot because expression of the wild type TGB2 does not fall within the scope of the newly presented claims. Applicants argue that claims 33-35 are clear that the wild type TGB2 sequence to which mutations are introduced are not limited to SEQ ID NO: 1. Applicants argue that mutations are made to the recited hydrophilic domain, spanning only 9 amino acids (response, paragraph bridging pages 8-9). However, Applicants have not described any wild type TGB2 sequences that have at least 70% or 80% homology to SEQ ID NO: 1. The specification

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has not correlated the functional property of TGB2 proteins with the structures of nucleotide sequences that have at least 70% or 80% homology to the nucleotide sequence of SEQ ID NO: 1. Applicants' argument that the rejection is moot because expression of the wild type TGB2 is not within the scope of the claims is not persuasive because the wild type TGB2 sequences are required starting material for the claimed method. All of the other nucleotide changes, in addition to those in the hydrophilic region, would still be present in the mutant TGB2 sequence. Further, the specification does not describe the 9 amino acids that can be subject to mutation. The specification only refers to the hydrophilic region. Nothing is mentioned in the specification about number of residues in that region, or their identities. The specification does not describe the sequences that make up the hydrophilic region, downstream of the N-terminal hydrophobic domain and just upstream of the conserved central domain, of all wild type TGB2 sequences of all viruses. The remainder of the arguments in Applicants response appears to address the enablement rejection.

9. Claims 33-37, 39, 40, 42-50, 52, and 54-62 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, for the reasons of record stated in the Office action mailed December 9, 2003 for claims 1, 2, 4-12, 14-32. Applicants traverse the rejection in the paper filed June 1, 2004. Applicants' arguments have been fully considered but were not found persuasive.

Applicants disagree with a statement in the last Office action indicating that the specification teaches that only plants expressing SEQ ID NO: 3 inhibited movement of BNYVV. Applicants argue that the specification at page 12 teaches that the decreasing of local lesions is mostly observed with the co-inoculation of the mutant sequences, and that 100% inhibition is not a prerequisite of the invention (response, page 8, 1st full paragraph). The statement made in the last Office action related to now cancelled claims 23 and 27, which encompassed increasing BNYVV resistance in transgenic plants by expressing SEQ ID NO: 1, which is not a mutant. The point being made in the last Office action was that the specification did not teach expressing SEQ ID NO: 1 in transgenic plants. Further, it is noted that Applicants misquoted the specification. In their arguments, Applicants stated that the specification, on page 12, states, ““mostly observed with the co-inoculation of the mutated sequences (up to 100% inhibition)” (emphasis added)” (response, page 8, 1st full paragraph). However, that statement in the specification states, “mostly observed with the co-inoculation of the mutated sequence SEQ ID NO. 3 (up to 100% inhibition).”

Regarding claim 59 (former claim 20): the previous Office actions raised the issue that, in claim 20, it is unclear how one skilled in the art would discern any effect of BNYVV resistance on the claimed plant due to expression of the transgenic mutant TGB2 sequence, as the host plant apparently already has natural resistance against it. Applicants argue that the Examiner should understand that the term "resistance" is used to refer to traits that prevent infection or limit its extent, whereas the term "tolerance" is used to refer to traits that do not reduce or eliminate infections but instead reduce or offset the fitness consequences (response, page 8, 2nd full paragraph). However, it

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remains, it is unclear how one would discern the effect of BNYVV resistance of the plant due to expression of the mutant TGB2 sequence, since fitness consequences have already been offset. The expression of the mutant TGB2 sequence would also offset “fitness consequences” of BNYVV infection. If “fitness consequences” are already offset in the tolerant host plant, what is the purpose of expressing the mutant TGB2 sequence?

Applicants’ response does not address the issues that the specification does not teach any wild type TGB2 nucleotide sequence that is at least 70% or 80% homologous to SEQ ID NO: 1, and that the specification does not teach any other nucleotide sequences encoding mutant TGB2 proteins that confer increased resistance to BNYVV when expressed in transgenic plants other than SEQ ID NO: 3.

Applicants assert that the new claims no longer encompass expression of antisense sequences (response, page 8, 3rd full paragraph). Applicants should note that claims 34, 35, 47, and 48 indicate that the wild type TGB2 can be encoded by a nucleotide sequence that has at least 70% or 80% homology with SEQ ID NO: 1, its complement, or with its corresponding RNA. Parent claim 33 indicates that a transgenic plant is regenerated from the transformed plant cell, which indicates that the nucleotide construct comprising the nucleotide sequence encoding the mutant TGB2 can only be a DNA construct. If SEQ ID NO: 1 encodes the BNYVV TGB2, its complement cannot, and sequences having homology to the complement cannot. The corresponding RNA of SEQ ID NO: 1 is translated into TGB2, however, since the construct used in the method is a DNA construct, the wild type TGB2 sequence into which the mutations are introduced can only be DNA.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 33-37, 39, 40, 42-50, 52, and 54-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al. "'94" (Proc. Natl. Acad. Sci., 1994, Vol. 91, pages 10310-10314) in combination with Saito et al. (Arch. Virol., 1996, Vol. 141, pages 2163-2175), Bouzoubaa et al. (J. Gen. Virol., 1986, vol. 67, pages 1689-1700), Beck et al. "'91" (Virology, 1991, Vol. 183, pages 695-702), Hall et al. (WO 95/10178), Urwin et al. (Plant J., 1995, Vol. 8, pages 121-131), and Landsman et al. (Mol. Gen. Genet., 1988, Vol. 214, pages 68-73), for the reasons of record stated in the Office action mailed December 9, 2003 for claims 1, 2, 4, 5, 7-12, 14, 16-19, 21, 22, 25, 28, 29, 31, and 32. Applicants traverse the rejection in the paper filed June 1, 2004. Applicants' arguments have been fully considered but were not found persuasive.

Applicants argue that Beck et al. teach the replacement of amino acids in the central hydrophilic domain. Applicants assert that this is "thus the central conserved domain of the hydrophilic region of TGB2", and that there is no suggestion with respect to the modification in the region just upstream thereof (response, paragraph bridging pages 8-9). However, it is not clear that the region mutated in Beck et al. is the conserved central domain. The claims do not indicate that the central domain is a central

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hydrophilic domain, and the instant specification does not teach that the central conserved domain is also called the central hydrophilic domain.

11. Claims 38, 41, 51, and 53 are objected, and claims 33-37, 39, 40, 42-50, 52, and 54-62 are rejected.

Contact Information

Any inquiry concerning this or earlier communications from the Examiner should be directed to Ashwin Mehta, whose telephone number is 571-272-0803. The Examiner can normally be reached from 8:00 A.M to 5:30 P.M. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Amy Nelson, can be reached at 571-272-0804. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9307 for After Final communications. Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

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July 29, 2004



Ashwin D. Mehta, Ph.D.
Primary Examiner
Art Unit 1638